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Forest Service

Northeastern Area
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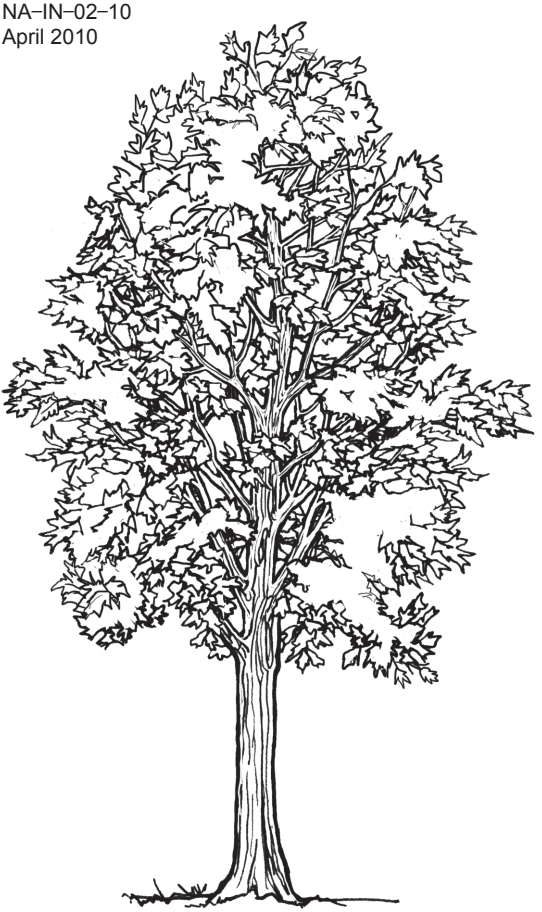

Marketing Dead Timber in the Upper Midwest

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For More Information:

Contact your State Department of Agriculture for details on compliance agreements and for current quarantine information.

Minnesota
www.mda.state.mn.us/about/divisions/plantprotection.aspx

Wisconsin
datcp.state.wi.us/core/insectspesticides/insectspesticides.jsp

Michigan
www.michigan.gov/mda/0,1607,7-125-1568_2390_46323---,00.html

If you need additional information about marketing dead timber, firewood, log movement regulations, or other related issues, visit these Web sites:

Minnesota
www.dnr.state.mn.us/forestry/index.html

Wisconsin
dnr.wi.gov/forestry

Michigan
www.michigan.gov/dnr/0,1607,7-153-30301---,00.html

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Contents

Introduction 1

Time is Important 1

Appearance Class Guidelines and Product Value 2

Appearance Class 1 2

Appearance Class 2 4

Appearance Class 3 5

Wood Movement .....Back cover

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Introduction

Gypsy moth, oak wilt, emerald ash borer, two-lined chestnut borer, forest tent caterpillar—these are some of the many insects and diseases affecting the forests of the Upper Midwest. Trees that are killed by these and other pests can provide income if they are harvested to make a variety of wood products. This publication provides helpful information and insights if you are considering marketing dead and dying timber in the Upper Midwest.

To market dead or dying timber, your first step is to contact a professional forester. He or she can help you determine your management objectives, select specific trees to cut, estimate how much timber you have, advertise the timber sale, select a timber buyer, prepare a contract with the logger, and monitor harvesting operations. Check out one or more of these publications for detailed information about how to conduct a timber sale:

- **Marketing Timber from the Private Woodland** (www.extension.umn.edu/distribution/naturalresources/DD2723.html)
- **Conducting a Successful Timber Sale** (clean-water.uwex.edu/pubs/forest.htm#conduct)
- **Timber Sale Preparation** (www.michigan.gov/dnr/0,1607,7-153-10368_21637---,00.html)
- **Marketing Timber** (www.ces.purdue.edu/extmedia/FNR/FNR-111.pdf)

Keep in mind that dead trees can benefit wildlife by providing sites for nesting, foraging, perching, and hiding. Dead trees can also provide ecological benefits because they store moisture, carbon, and nutrients. Consider these benefits along with financial benefits when considering a timber harvest.

Time is Important

Each year that a dead tree remains standing, the number of products that can be made from it (and therefore its value) declines due to natural decay from insect and fungal activity. Timber buyers seldom offer the same prices for dead material as they do for standing green timber.

Harvest trees before they die to get the highest dollar return. If this is not possible, try to harvest them within 1 year after they die. This is especially important for wood products that are worth more, such as veneer and grade saw logs. After 3 to 5 years, the only salvageable wood products may be firewood, pallet stock, or chips for energy markets.

Appearance Class Guidelines and Product Value

Use the appearance class guidelines in this publication (figures 1, 2, and 3) to help you gauge how long a tree has been dead. These guidelines illustrate what trees and their log cross sections look like the longer they have been dead. Table 1 also describes how trees look in each appearance class, what pest activity may be present, and the condition of their wood.

The types of products you can make from a dead tree depend on its species, log quality, and the soundness of its wood. Use table 2 to determine the categories of wood products you can make from trees in each appearance class. Knowing what insect and disease activity has occurred can also help you determine a tree's potential product value. Trees weakened by one or more pests are highly susceptible to attack by other organisms. For example, oak trees defoliated by the gypsy moth are often subsequently attacked by Armillaria root disease and the two-lined chestnut borer, which may kill the trees. Many insect species that bore into the wood or living tree tissue carry fungi that stain wood, further decreasing its value.

Appearance Class 1

At this stage, the bark is tight (intact and difficult to remove by hand) and still has its natural color (figure 1, table 1). Some light staining may be present in the outermost wood. Little or no insect activity is visible, although insects may be present under the bark. The crown may have sparse patches of green leaves interspersed among the dead foliage and branches. If leaves are absent, the presence of fine twigs indicates that the tree died recently. The wood may show a few signs of minor decay, but for the most part, decay is absent. At this stage, the wood of oak, ash, and hard maple species is suitable for veneer, saw logs, pulpwood, and other wood products (table 2).

Appearance Class 1
(Figure 1)

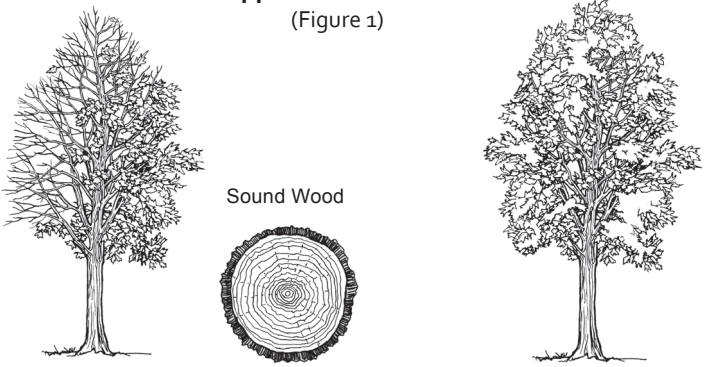


Table 1. Tree appearance of oak (*Quercus* spp.), maple (*Acer* spp.), and ash (*Fraxinus* spp.) for each appearance class

Appearance Class	Bark	Pest Activity	Crown Condition	Wood Condition
1	Tight throughout the tree	Little or none visible; possible larval tunneling under bark, including emerald ash borer in ash	Dead branches but a few green leaves may still be present	Intact but may have some minor discoloration
2	Coming off the upper crown and main stem	Ambrosia beetle and wood borer tunnels in the wood; sap rot evident (progressing inside to outside and bottom to top of the tree bole)	Small dead branches begin to drop; intermediate-sized dead branches may also drop	Sapwood discoloration and decay; weather checks
3	Gone from the main stem; little or no bark anywhere on the tree	Timberworm, round- and flat-headed borer tunnels in the wood; heart rot evident (progressing inside to outside and bottom to top of the tree bole); Armillaria (shoestring fungus) under the bark	Few or no dead branches left	Advanced decay and weather checks present

Table 2. Wood product categories for each appearance class

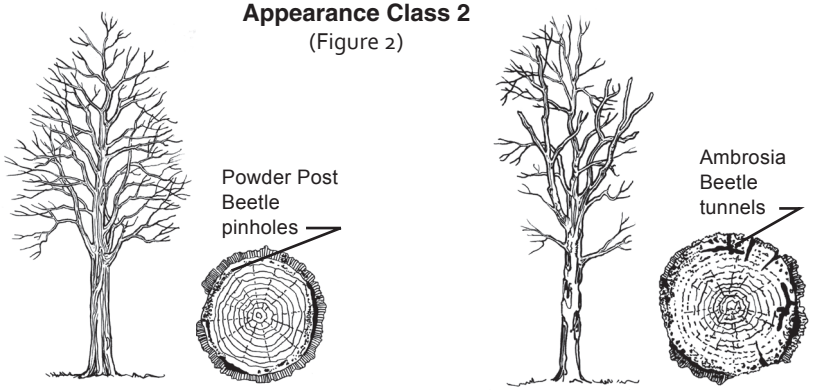
Appearance Class	Veneer	Grade Sawlogs	Pulpwood	Local Use	Firewood
1	Yes	Yes	Yes	Yes	Yes
2	No	Maybe	Yes	Yes	Yes
3	No	No	Maybe	Yes	Yes

Appearance Class 2

The bark is shedding off the tree (figure 2, table 1). Stain is evident throughout the outer sapwood and advanced decay may be visible. Wood borer damage is moderate to prominent. Woodpecker activity may also be prominent. The loss of tree limbs will progress from fine twigs to intermediate branches.

Trees in the early to mid stages of Appearance Class 2 can still be salvaged for sawlogs and pulpwood (table 2) since rot and activity by wood borers are typically localized in the outermost part of the wood. However, as a tree deteriorates to the later stages of Appearance Class 2, it becomes unsuitable for high-quality roundwood products, such as grade sawlogs, due in large part to checks (cracking due to uneven drying and weather) and discoloration (especially in lighter-colored woods like maple).

Appearance Class 2
(Figure 2)



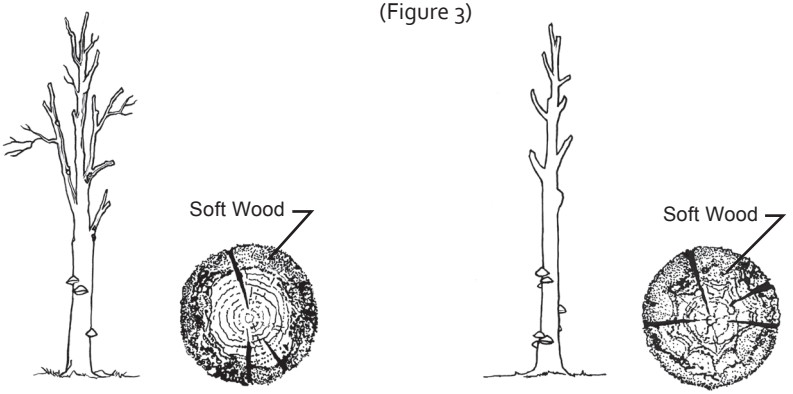
Pulpwood is still a marketable product with some loss in fiber because of sapwood decay. In this stage of decay, much of a tree's sawlogs can be made into pallet lumber, dunnage, and local-use products such as fencing and shelving. Firewood is another possibility, but the least desirable, since it generally has less value than most other wood products.

Appearance Class 3

By this stage, most or all of the bark is missing from the main stem and most branches have fallen off (figure 3, table 1). Advanced decay, as indicated by mushrooms, conks, and splits, can be obvious. You will see numerous insect holes and tunnels. Some portions of the main stem may still be sound, but brown rot will be apparent.

Wood volume and value losses are significant. When decay is not extreme, you can use the wood for firewood, pallet lumber, low-grade pulpwood, and local-use lumber (table 2). If decay is extreme, however, you can only use the wood as firewood.

Appearance Class 3
(Figure 3)



Wood Movement

Insects and diseases can be spread through the movement of infested wood and wood products, particularly firewood. Pests can be in, on, or under the bark of wood and easily transported from infested to noninfested areas by unsuspecting loggers, campers, hunters, cabin owners, and others. As a result, some States have placed restrictions on the sale and movement of firewood because of the risk this poses for transporting pests.

Some practices you can use to lower the risk of spreading pests in firewood include:

- Don't move green (unseasoned) firewood
- Remove the bark and split the wood if possible
- Dry (season) firewood where it is cut
- Burn wood that is of local origin
- Be aware of quarantine areas and follow established guidelines (if any)

Quarantines, such as those for gypsy moth and emerald ash borer, restrict the movement of articles that could spread these pests. Not only is it the law, but it is in the best interest of all parties—landowners, loggers, truckers, and mill owners—to abide by the quarantine regulations. If logs or firewood will be transported from quarantined to nonquarantined areas, the shipper of the logs (the logger or sawmill, for example) must have an approved "compliance agreement." In a compliance agreement, the person moving the material agrees to abide by specified conditions that will prevent the movement of pests.